Junyu Cao

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Employment

The University of Texas at Austin
Assistant Professor in IROM, McCombs School of Business *2020 – Present*
Affiliated Faculty Member, Machine Learning Laboratory

Stanford University
Visiting Assistant Professor in Graduate School of Business *2023*

Education

The University of California, Berkeley
Ph.D. in Industrial Engineering and Operations Research *2015 – 2020*

Xi'an Jiaotong University
B.S. in Mathematics (Honor Program) *2011 – 2015*
Graduated with the highest honor (Top 10/30000)

Research Interests

- AI-driven decision-making, with a focus on sequential decision-making (online learning, active data acquisition), human-AI collaboration (model alignment, reinforcement learning from human feedback), and trustworthy decision-making (enhancing interpretability, safety, and adaptability in decision-making processes).
- Smart-city analytics and urban operations, with an emphasis on agile logistics, transportation systems including ride-hailing platforms, and autonomous mobility solutions.

Research Papers

• *Journal Publications*

1. Junyu Cao. Collaborative Learning and Decision-Making on Pricing and Recommendation: A Simple Framework for Planning. Forthcoming, ***Management Science***.
2. Mohsen Bayati, Junyu Cao, Wanning Chen. Speed Up the Cold-Start Learning in Two-Sided Bandits with Many Arms. Forthcoming, ***Management Science***.
   Selected for MSOM SIG Presentation
3. Junyu Cao, Wei Qi, Yan Zhang. Online Facility Location: Running Stores on Wheels with Spatial Demand Learning. Forthcoming, ***Manufacturing & Service Operations Management***.
4. Junyu Cao, Yan Leng. Adaptive Data Acquisition for Personalized Recommender Systems with Optimality Guarantees on Short-Form Video Platforms. ***Management Science***, 2025.
   Second Prize, Revenue Management and Pricing Data-driven Research Challenge
5. Junyu Cao, Wei Sun. Tiered Assortment: Optimization and Online Learning. ***Management Science***, 2024.
6. Junyu Cao, Wei Qi. Stall Economy: The Value of Mobility in Retail on Wheels. ***Operations Research***, 2023.
   Finalist, MSOM Service Management SIG Best Paper Award

Second Prize, INFORMS Service Science Section Best Cluster Paper Award

7. Hansheng Jiang, Junyu Cao, Zuo-Jun (Max) Shen. Intertemporal Pricing under Reference Effects and Consumer Heterogeneity via Nonparametric Estimation. ***Manufacturing & Service Operations Management***, 2023.
   Finalist, MSOM Data-Driven Research Challenge
8. Junyu Cao, Mariana Olvera-Cravioto, Zuo-Jun (Max) Shen. Last-mile Shared Delivery: A Discrete Sequential Packing Approach. ***Mathematics of Operations Research***, 2020.
   Finalist, INFORMS IBM Service Science Best Student Paper
9. Junyu Cao, Alexander B. Herman, Geoffrey B. West, Gina Poe, Van M. Savage. Unraveling Why We Sleep: Quantitative Analysis Reveals Abrupt Transition From Neural Reorganization to Repair in Early Development. ***Science Advances***, 2020.
10. Junyu Cao, Mariana Olvera-Cravioto. Connectivity of a General Class of Inhomogeneous Random Digraphs. ***Random Structures & Algorithms***, 2020.
11. Junyu Cao*, Danqing Zhang*, Sid Feygin, Dounan Tang, Zuo-Jun (Max) Shen, Alexei Pozdnoukhov. Connected Population Synthesis for Urban Simulation. ***Transportation Research Part C: Emerging Technologies***, 2019. (* stands for equal contribution)
12. Tong Xin, Junyu Cao. Some Discussions About The Best Approximate Element For A Closed Set In Euclidean Space. ***Studies In College Mathematics***, 2015, 18(1).
13. Junyu Cao. An Alternative Proof of Cauchy Criterion. ***Studies In College Mathematics***, 2012,15(5).

- ***Conference Proceedings***

14. Danqing Zhang, Yaoyao Qian, Shiying He, Yuanli Wang, Jingyi Ni, Junyu Cao*. VisualTreeSearch: Understanding Web Agent Test-time Scaling. ***European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*** (***ECML PKDD***) **–** ***Demo Track***, 2025. (* stands for corresponding author)
15. Danqing Zhang, Balaji Rama, Fu Zhao, Kunyu Chen, Jingyi Ni, Shiying He, Arnold Chen, Junyu Cao*. LiteWebAgent: The Open-Source Suite for VLM-Based Web-Agent Applications. ***North American Chapter of the Association for Computational Linguistics*** (***NAACL***) **–** ***Demo Track***, 2025. (* stands for corresponding author)
16. Junyu Cao, Ruijiang Gao, Esmaeil Keyvanshokooh. HR-Bandit: Human-AI Collaborated Linear Recourse Bandit. ***Artificial Intelligence and Statistics*** (***AISTATS***), 2025.
17. Wang Dairui, Junyu Cao*, Zhang Yan, and Wei Qi*. Cascading Bandits with Delayed Feedback and Action Frequency Control. ***Advances in Neural Information Processing Systems*** (***Neurips***), 2024.
18. Junyu Cao, Wei Sun, Zuo-Jun (Max) Shen, Markus Ettl. Fatigue-Aware Bandits for Dependent Click Models. ***Thirty-fourth AAAI Conference on Artificial Intelligence*** (***AAAI***), 2020.
19. Junyu Cao, Wei Sun. Dynamic Learning with Frequent New Product Launches: A Sequential Multinomial Logit Bandit Problem. ***Thirty-sixth International Conference on Machine Learning*** (***ICML***), 2019.
20. Junyu Cao, Wei Sun. Dynamic Learning of Sequential Choice Bandit Problem under Marketing Fatigue. ***Thirty-third AAAI Conference on Artificial Intelligence*** (***AAAI***), 2019.

Working Papers

- *Papers under revision*

21. Junyu Cao. A Conformal Approach to Feature-based Newsvendor under Model Misspecification. (Major revision, ***Management Science***)
22. Junyu Cao, Wei Sun, Zuo-Jun (Max) Shen. Doubly Adaptive Cascading Bandits with User Abandonment. (Minor revision, ***Operations Research***)
    Katta Murty Best Paper Prize
23. Zhuolun Dong, Junyu Cao, Wei Qi. Retail on Autonomous Wheels: A Time-Sensitive Traveling Salesman Problem. (Minor revision, ***Management Science***)
    Finalist, Undergraduate Operations Research Prize, awarded to Zhuolun Dong
    Finalist, the POMS College of Supply Chain Management Best Student Paper Competition, awarded to Zhuolun Dong
24. Junyu Cao, Yan Leng, Hao Wang. Revenue-Centered Delivery Time Presentation on Platforms: A Spatial Neural ODE Approach. (Major revision, ***Management Science***)
25. Mo Liu, Junyu Cao, Zuo-Jun (Max) Shen. Pricing under the Generalized Markov Chain Choice Model: Learning through Large-scale Click Behaviors. (Major revision, ***Management Science***)
    Finalist, INFORMS Service Science Student Competition, awarded to Mo Liu
26. Junyu Cao, Esmaeil Keyvanshokooh, Tian Liu. Safe Reinforcement Learning with Contextual Information: Theory and Application to Personalized Comorbidity Management. (R&R, ***Operations Research***)
    Second Prize, POMS College of Healthcare OM Best Paper Competition
    Selected for MSOM Healthcare SIG Presentation

- *Submitted and working papers*

27. Junyu Cao, Mohsen Bayati. A Probabilistic Approach for Alignment with Human Comparisons.
28. Junyu Cao, Sheng Liu. Coordinate Scheduled and On-Demand Jobs in a Spatial Setting: A Simple Zoning and Switching Policy.
    Finalist, Service Science Best Cluster Paper Award
    Finalist, CSAMSE Best Paper Award Competition
29. Junyu Cao, Feihong Hu, Wei Qi. "Uber" Your Cooking: The Sharing-Economy Operations of a Ghost-Kitchen Platform.
30. Junyu Cao, Yan Leng. Network-Enabled Sequential Data Acquisition.
31. Junyu Cao, Yan Leng. Human-Algorithm-Collaborative Framework to Optimize Recommendations on Crowdsourcing Labor Markets.
    Winner, INFORMS ISS Cluster Best Paper Award
32. Junyu Cao, Ruijiang Gao, Mingzhang Yin. Conformal Policy Alignment: When to Deploy AI Decisions for Targeted Intervention.
33. Junyu Cao, Ruijiang Gao, Esmaeil Keyvanshokooh, Jianhao Ma. LIBRA: Language Model Informed Bandit Recourse Algorithm.
34. Mo Liu, Junyu Cao, Zuo-Jun (Max) Shen. Active Label Acquisition with Personalized Incentives in Assortment Optimization.
35. Mengxin Wang, Meng Qi, Junyu Cao, Zuo-Jun (Max) Shen. Urban Courier: Operational Innovation and Data-driven Coverage-and-Pricing.

36. Junyu Cao, Rui Gao. Contextual Decision-making under Parametric Uncertainty and Data-driven Optimistic Optimization.

Teaching Experience

Instructor, Department of IROM, McCombs School of Business, UT Austin

- DS 235 Introduction to Decision Science — 2025 Spring
- DS 235 Introduction to Decision Science — 2024 Spring
- DS 235 Introduction to Decision Science — 2022 Spring
- STA 371G Statistics and Modeling — 2020 Fall

Graduate Student Instructor, Industrial Engineering & Operations Research, UC Berkeley

- IEOR 263A Applied Stochastic Processes (graduate) — 2018 Fall
- IEOR 173 Introduction to Stochastic Processes — 2018 Spring
- IEOR 263A Applied Stochastic Processes — 2017 Fall
- IEOR 172 Probability and Risk Analysis for Engineers — 2016 Fall

Graduate Student Instructor, Haas School of Business, UC Berkeley

- UGBA 103 Introduction to Finance — 2016 Summer
- UGBA 131 Corporate Finance and Financial Statement Analysis — 2016 Summer

Academic Honors and Awards

McCombs Research Excellence Grant ($20,000) — 2025
Finalist, CSAMSE Best Paper Award Competition — 2025
Finalist, MSOM Service Management SIG Best Paper Award — 2024
Finalist, Service Science Best Cluster Paper Award — 2024
Second Place, POMS CHOM Best Paper Competition — 2024
Reviewer Award, Operations Research Letters — 2023
Winner, INFORMS ISS Cluster Best Paper Award — 2022
Second Place, INFORMS Service Science Section Best Cluster Paper Award — 2022
Second Place, Revenue Management and Pricing Data-driven Research Challenge — 2021
Finalist, MSOM Data-Driven Research Challenge — 2020
Finalist, INFORMS IBM Service Science Best Student Paper — 2019
Katta Murty Best Paper Prize — 2019
IBM Ph.D. Fellowship (16 total worldwide) — 2019
2nd place at Citadel Datathon Competition — 2018
Outstanding Graduate Student Instructor — 2018
Outstanding Student (The highest honor on campus, Top 10/30000) — 2014
National Scholarship (Top 2%) — 2014
Microsoft Research Asia Fellowship (39 total in China) — 2014
UCLA CSST Scholarship (89 total in China) — 2014
National Scholarship (Top 2%) — 2012

Work Experience

Research Summer Intern at IBM Thomas J. Watson Research Center — 2019 Summer
Research Summer Intern at IBM Thomas J. Watson Research Center — 2018 Summer

Patents

- System and Method for Merchandise Planning with Short Life Cycle Products
- System and Method for Automated Discovery of Personalized Offers

Invited Talks

Boston University	July 2023
Amazon	June 2022
YINZ OR	Aug. 2021
Amazon SSAI Research	July 2021
University of California San Diego	June 2021
Fudan University	Feb. 2021
Stanford University	Feb. 2020
University of California, Los Angeles	Feb. 2020
University of Minnesota Twin Cities	Feb. 2020
University of Southern California	Jan. 2020
New York University	Jan. 2020
Northwestern University	Jan. 2020
The Pennsylvania State University	Jan. 2020
Cornell University	Jan. 2020
University of Florida	Jan. 2020
The University of Texas at Austin	Dec. 2019
University of British Columbia	Dec. 2019
National University of Singapore	Nov. 2019
IBM Thomas J. Watson Research Center	Aug. 2019
IBM Research - Almaden	May 2019
IBM Thomas J. Watson Research Center	Aug. 2018

Services

- Editorial: Guest Associate Editor, *Networks*.
- Journal Referees: *Operations Research, Management Science, Manufacturing & Service Operations Management, Production and Operations Management, Transportation Science, Information Systems Research, PLoS One, Operations Research Letters, Management Information Systems Quarterly, Networks.*
- Conference Referees: *Neurips, ICML, ICLR.*
- Judge: *MSOM Student Paper Competition, CSAMSE Best Paper Competition, INFORMS Dantzig Dissertation Award, APS Student Paper Competition.*
- Conference Organization: *INFORMS 2025 RMP cluster chair.*